Amendments to the Drawings:

Included in the amendment are an "Annotated Sheet Showing Changes" and a "Replacement Sheet" for Figs. 3 and 4B. In Fig. 3, reference numbers 314 and 320 have been added to label the data input to multiplexer 312 and to label the current source, respectively. In Fig. 4B reference numbers 470 and 472 have been added to label the data and signal to noise outputs of decision unit 468, respectively.

Remarks

The present amendment responds to the Official Action dated May 27, 2005. The Official Action rejected claims 1-33 under 35 U.S.C. §103(a) based on Herman et al. U.S. Patent No. 6,108,367 (Herman) in view of Carrender U.S. Patent Publication No. 2002/0149484 (Carrender). This sole ground of rejection is addressed below following a brief discussion of the present invention to provide context. Claims 1, 16, and 24 have been amended to be more clear and distinct. Claims 1, 16, and 24 have been amended to clarify that the pseudo random sequence is generated by the transmitter in the ESL. Claims 1-33 are presently pending.

The Present Invention

An electronic shelf label (ESL) system according to an aspect of the present invention uses a digital modulation technique for a modulated backscatter uplink from the ESL, in order to transmit information from the ESL to a communication base station (CBS). The ESL generates pseudo-random sequences and modulates them onto a continuous wave frequency signal originating at the CBS. In an exemplary embodiment, the CBS transmits a message to an ESL using a Manchester coded amplitude modulated carrier. After receiving the message, the ESL responds by reflectively modulating a continuous wave (CW) signal with a generated pseudo-random code sequence, so as to impose the pseudo-random code sequence onto the CW signal. The CW signal is transmitted from the CBS to the ESL by the CBS during an uplink phase or timeslot. A plurality of alternative pseudo-random code sequences may be chosen, with each code sequence corresponding to a particular response. In one aspect, the code sequence is

modulated onto a 32.768 kHz carrier which is used to reflectively modulate the CW signal received from the CBS. The CBS then receives the reflectively modulated signal and correlates the received signal to determine the message transmitted.

Drawing Amendments to Fig. 3 and Fig. 4B

During the preparation of this response, two typographical errors were noted and are now being corrected in the drawings. To make the reference numbers in the drawings consistent with the reference numbers in the specification, Figs. 3 and 4B are now being corrected. Support for the amendment to Fig. 3 can be found, for example, on page 6, lines 15-16 and page 7, lines 7-8. Support for the amendment to Fig. 4B can be found, for example, on page 9, lines 11-12.

The Art Rejections

As addressed in greater detail below, Herman and Carrender do not support the Official Action's reading of them and the rejections based thereupon should be reconsidered and withdrawn. Further, the Applicant does not acquiesce in the analysis of Herman and Carrender made by the Official Action and respectfully traverses the Official Action's analysis underlying its rejections.

Claim 1, as amended, claims an electronic price label (ESL) system comprising an ESL receiving a message transmitted from a communications base station (CBS). The ESL includes a transmitter having a generator for producing a pseudo-random code sequence. The transmitter transmits a response to the message by reflectively modulating a continuous wave (CW) signal

with the pseudo-random code sequence so as to impose the pseudo-random code sequence on the continuous wave signal. These limitations in the claimed combination are not taught by the relied upon art.

The Official Action rejected claims 1-33 under 35 U.S.C. §103(a) based on Herman in view of Carrender. As admitted in the Official Action, Herman fails to disclose and fails to suggest that the ESL modulates the received signal with a pseudo-random code sequence so as to impose the pseudo-random code sequence on the signal.

Carrender fails to cure the deficiencies of Herman. Carrender addresses a frequency-hopping radio frequency identification (RFID) system which includes an RF interrogator or reader and an RFID tag. The RF interrogator uses a frequency-hopping source to generate and transmit interrogation signals at pseudo-randomly selected frequencies which are reflected by an RFID tag. Carrender, p. 1, ¶ [0012]. The RFID tag does not generate a pseudo-random code sequence and does not modulate the received signal with the pseudo-random code sequence so as to impose the pseudo-random code sequence on the signal, as claimed by claim 1, as amended. Instead, the only pseudo-random code modulation performed by Carrender is performed by the interrogator, not by the ESL. Carrendar, p. 2, ¶ [0017]. Thus, Carrendar does not add any more relevant disclosure than Herman. Pseudo-random code modulation of a received signal by the ESL, as claimed by claim 1, as amended, allows for an increased data communication capability by the ESL.

Herman and Carrender, taken separately or in combination, do not teach and do not suggest "the ESL including a transmitter having a generator for producing a pseudo-random code

sequence, the transmitter transmitting a response to the message by reflectively modulating a continuous wave (CW) signal with the pseudo-random code sequence so as to impose the pseudo-random code sequence on the continuous wave signal," as presently claimed in claim 1. Even if Herman and Carrender were combined, the resulting combination would fail to meet the features of claim 1. Thus, claim 1, as amended, defines over the cited art and should be allowed.

Claim 16, as amended, claims an electronic shelf label (ESL) communication method comprising the steps of transmitting a message to an ESL from a communications base station (CBS), generating a pseudo-random code at the ESL, and transmitting a response by the ESL to the message by reflectively modulating a continuous wave (CW) signal with the generated pseudo-random code sequence so as to impose the pseudo-random code sequence onto the continuous wave signal. As noted above with respect to claim 1, Herman and Carrender do not teach and do not suggest generating a pseudo-random code transmitting a response by an ESL by modulating a continuous wave signal with a pseudo-random code sequence so as to impose the pseudo-random code sequence onto the continuous wave signal. Claim 16, as amended, therefore defines over the cited art and should be allowed.

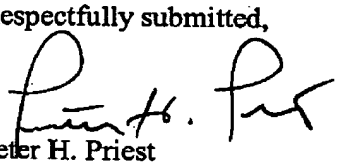
Claim 24, as amended, claims an electronic price label (ESL) comprising an ESL receiving a message transmitted from a communications base station (CBS). The ESL includes a transmitter having a generator for producing a pseudo-random code sequence. The transmitter transmitting a response to the message by reflectively modulating a continuous wave (CW) signal with the pseudo-random code sequence so as to impose the pseudo-random code sequence onto the continuous wave signal. As noted above with respect to claim 1, Herman does not teach

transmitting a response by an ESL by modulating a continuous wave signal with a pseudo-random code sequence so as to impose the pseudo-random code sequence onto the continuous wave signal. Claim 24, as amended, therefore defines over the cited art and should be allowed.

Conclusion

All of the presently pending claims, as amended, appearing to define over the applied references, withdrawal of the present rejection and prompt allowance are requested.

Respectfully submitted,



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